

18. EXTENSION OF RANGE OF THE FROG, *RANA CRASSA* JERDON, TO WESTERN HIMALAYAS, U.P.

During a recent survey of the Corbett National Park, we collected three specimens of *Rana crassa* Jerdon, two from Dhela, District Nainital and one from Dhikala, District Pauri. All three examples agree fully with the published description of the species, *Rana crassa* Jerdon.

The known distribution of this species is Sri Lanka, and southern Peninsular India to Varanasi and Agra (Lat. $c 27^{\circ}10' N$) in the north (Boulenger 1920; Bhaduri 1944). Their occurrence at Corbett National Park (Lat.

$c 29^{\circ}35' N$) extends the Northern range to Western Himalayas, U.P. It is quite possible that this species is evenly distributed throughout the foothills of Himalayas, U.P.

ACKNOWLEDGEMENTS

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NORTHERN REGIONAL STATION,
ZOOLOGICAL SURVEY OF INDIA,
DEHRA DUN,
June 19, 1976.

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19. *ECHIS* IN TREES

It was interesting to read Whitaker's note on *Echis carinatus* in the *Journal* 72:563 in which he makes special reference to the fact that this essentially ground living snake climbs into trees during the rains.

In Saurashtra, this is possibly one of the commonest snakes and we have quite often seen it in the branches of *Mimosa senegal* which forms the scrub jungle around Hingol-gadh Fort. I, myself, while descending a steep hill slope reached out to hold a branch ahead of me, fortunately to note—in time—a coiled *Echis* resting in a fork close to where I was

about to place my hand. The snake had obviously dozed off after a substantial meal, judging from its bulging appearance. I left it resting and went my way. Incidentally, though without proof, I suspect a large number of young birds in nests are taken by this snake. In our area, some of the victims are White-bellied Minivet, *Pericrocotus erythropygus*. Small Minivet. *P. peregrinus*, Marshal's Iora *Aegithina nigrolutea* and Redvented Bulbul, *Pycnonotus cafer*. All of them nest in the mimosa trees. On several occasions while photographing these birds, I applied motor

grease to the branch below the nest to discourage snakes climbing up and was rewarded in each case by seeing the young leave their nests!

Echis is active during the rains and it is then that it will readily climb up trees. Reading Whitaker's note I gained the impression that the snake goes into trees, possibly to evade water-logging. This would certainly not be the case in the hilly ground where I have come to know this viper. Of course, I am no expert but an interest in, and some knowledge of, this snake has been a bonus from my interest in birds.

My attention has been drawn by the Society's Librarian, Mr. J. S. Serrao, to an article entitled "The Wild Plantain (*Musa superba* Roxb.), by G. M. Ryan (*J. Bombay nat. Hist. Soc.* Vol. 15: 589, 1904), where the

author writes: 'It perhaps may be interesting to mention here parenthetically that near the end of the rainy season the Foorsa (*Echis carinata*) finds a resting place between the leaf-stalks of the wild plantain leaves in the erstwhile Bombay area. An editorial footnote appended to this sentence reads: "He is also fond of inhabiting the branches of the 'apta' (*Bauhinia racemosa*)".

Commenting on my note Romulus Whitaker to whom it was sent for an opinion, says "terrestrial snakes are tolerant of water and wet ground to some extent but even the larger ones like the cobra and rat snake become more arboreal in habit during the rains. Soaking for too long and extra long contact with substratum below normal, optimum temperature (i.e. from wetness) may lead to respiratory ailments and digestion problems in snakes."

C/O. WILDLIFE FUND-INDIA,
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20. OBSERVATIONS ON THE STRUCTURE OF THE HEMIPENIS IN SOME INDIAN SNAKES (With four text-figures)

A detailed study of the systematic characteristics of the hemipenis of four Indian snakes *Eryx conicus*, *Lycodon striatus*, *Naja naja*, and *Echis carinatus* was undertaken. In the snakes studied their active reproductive phase facilitated quicker eversion of the hemipenis than that of inactive condition.

INTRODUCTION

The external genital structures of snakes, called hemipenis, vary with species in morphological details. Cope (1898) was the first to draw attention to the possibility of taxono-

mic classification of species based upon the structure of the hemipenis. The paper on basic structure of the snake hemipenis by Dowling and Savage (1960) has been particularly important.

The anatomy of the hemipenis of the Indian snakes has received little attention except for the observations of Smith (1943), McCann (1946) and Sabnis (1969). The observations of Smith (1943) were based on "... poorly preserved material mostly *in situ*," whereas McCann (1946) has described the external genitalia of some reptiles in